

STUDY OF FILTER PRESS AND ITS APPLICATION

***A THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF BACHELOR OF TECHNOLOGY***

By

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DEPARTMENT OF CERAMIC ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY

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CERTIFICATE

This is to certify that the thesis entitled, “**STUDY OF FILTER PRESS AND ITS APPLICATION** ” submitted by **Mr Pranaya PR Behera** in partial fulfillment of the requirements of the award of **Bachelor of Technology Degree in Ceramic Engineering** at the **National Institute of Technology, Rourkela** is an authentic work carried out by her under my supervision and guidance. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other university / institute for the award of any Degree or Diploma.

Date: **7th May 2010**

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Pranaya PR Behera

Abstract

The present work aims to study different applications and parts of filter press presently there in Department of Ceramic Engineering. The filter press was non-functional for the long period of time, so the steps have been taken to repair the filter press and make it functional for processing of ceramics. First the process has been studied theoretically and it was applied on the filter press to find out the malfunctioning areas in the filter press. Necessary care has been taken to repair the filter press.

An Introduction to Filter Presses

Types of Filter Press

- Plate filter presses
- Chamber Filter Presses
- Membrane Filter Presses
- Plate & Frame Filter Presses -Sheet Filters
- Tubular Filter presses

Plate filter presses

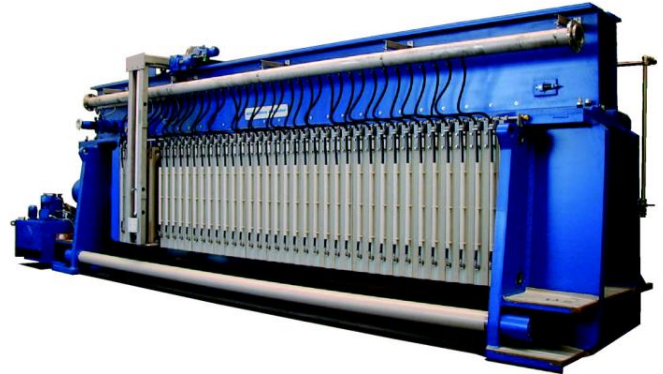
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Chamber Filter Presses



Membrane Filter Presses



Tubular Filter Press¹:

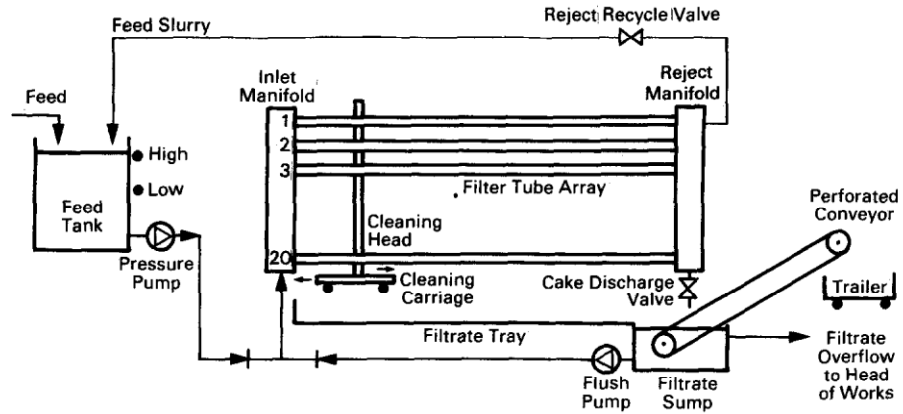


Fig 1 Tubular Filter Press Process Schematic [1]

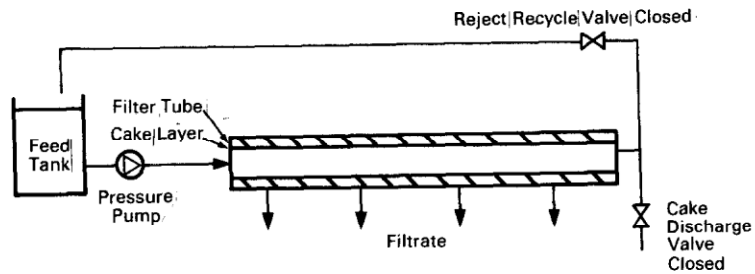


Fig 2 Single tubular filter press tube showing deposition of cake layer [1]

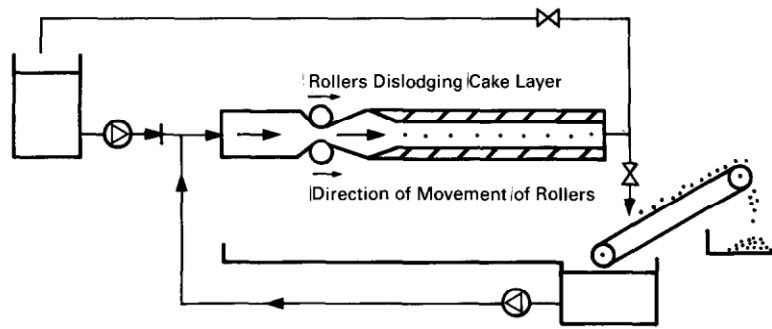


Fig. 3. Rollers creating a restriction in the tubular filter press tube and dislodging the cake.[1]

Filter press in Department of Ceramic Engineering



Filter Press



Motor







Filter Cloth

Applications

Filter Press Applications:

- Dewatering Industrial Sludge
- Reclaiming Precious Metals
- Processing of Pharmaceuticals
- Product Filtration
- Dewatering Hazardous Wastes
- Process Waste Waters in EPA Approved Treatment Systems

Filter Press for effluent pollution treatment plant/waste water treatment plant in different industries

- Marble waste de-watering.
- Pharmaceuticals industries
- Hotel domestic sludge
- Steel tubes / wire industries
- Steel re-rolling industries
- Textile industries
- PCB Circuit/switch board industries

Reference

1. THE DEWATERING OF SLUDGES USING A TUBULAR FILTER PRESS K. TREFFRY-GOATLEY, M.I. BUCHAN, G.E. RENCKEN, W.J. VORTMAN and C.A.BUCKLEY

2. K. Treffry-Goatley and C.A. Buckley, South African Patent No. 86/1834, Dewatering Slurries (1987) assigned to the Water Research Commission, Pretoria, and Republic of South Africa.

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